

What is claimed is:

1. A method for enhancing detection of a material, comprising:  
providing a device comprising at least first, second, and third channels which intersect with and are fluidly coupled to a fourth channel and a source of a sample material in fluid communication with at least said first channel, wherein said first channel intersects said fourth channel at an opposite side of and at a channel region which is located between the intersection of the second and third channels with the fourth channel;  
electrokinetically loading said sample material comprising at least a first species in a low conductivity buffer into the first channel and directing the sample material into the second and third channels via the fourth channel while concomitantly loading fluid of high conductivity buffer from opposite ends of the fourth channel into the second and third channels so that the low conductivity buffer of the sample material forms at least two fluidic interfaces with the high conductivity buffer; and  
applying an electric field along a length of the fourth channel to concentrate at least said first species at at least one of said two fluidic interfaces, whereby detection of said first species is enhanced,
2. The method of claim 1, wherein the sample material comprises an antibody/antigen mixture.
3. The method of claim 1, wherein the detection is enhanced by an increase in concentration of said first species.
4. The method of claim 1, wherein the sample material comprises at least a first and a second species.
5. The method of claim 4, wherein the detection is further enhanced by electrophoretically separating the first species from the second species in the fourth channel.

6. The method of claim 5, wherein the second species is transported to a location other than a detection region of the device.
7. The method of claim 1, wherein the at least first species is negatively charged.
8. The method of claim 1, wherein the at least first species is positively charged.
9. The method of claim 1, wherein the at least first species comprises nucleic acids.
10. The method of claim 1, wherein the at least first species comprises polypeptides.
11. The method of claim 1, wherein the sample material comprise a mixture of different materials.
12. The method of claim 1, wherein the applying step comprises applying an electric field of a sufficient magnitude and for a sufficient duration to concentrate the at least first species at least 2 fold.
13. The method of claim 1, wherein the applying step comprises applying an electric field of a sufficient magnitude and for a sufficient duration to concentrate the first species at least 5 fold.
14. The method of claim 1, wherein the applying step comprises applying an electric field of a sufficient magnitude and for a sufficient duration to concentrate the first species at least 10 fold.

15. The method of claim 1, wherein the applying step comprises applying an electric field of a sufficient magnitude and for a sufficient duration to concentrate the first species at least 100 fold.

16. The method of claim 1, wherein said loading fluid of high conductivity buffer from opposite ends of the fourth channel into the second and third channels comprises electrokinetically loading the high conductivity buffer from opposite ends of the fourth channel into the second and third channel.

17. The method of claim 1, wherein said loading fluid of high conductivity buffer from opposite ends of the fourth channel into the second and third channels comprises hydrodynamically loading the high conductivity buffer from opposite ends of the fourth channel into the second and third channel.

18. The method of claim 4, wherein said first and second species are oppositely charged and wherein said first species is concentrated at one of said two fluidic interfaces and said second species is concentrated at the other one of said two fluidic interfaces during said applying step.